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Shenzhen Branch**

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Report No.: SZEM181100996501
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TEST REPORT

Application No.: SZEM1811009965CR
Applicant: Chug, Inc.
Address of Applicant: 7157 Shady Oak Road Eden Prairie Washington Minnesota 55344 United States
Manufacturer: Shenzhen Rlhuida Electronic Co., Ltd
Address of Manufacturer: Building A4,2nd/3rd/4th floor of Building A3, in Fuzhong Industrial Area Xiashiwei Road of Fuyong Street, Bao'an District, Shenzhen
Factory: Shenzhen Rlhuida Electronic Co., Ltd
Address of Factory: Building A4,2nd/3rd/4th floor of Building A3, in Fuzhong Industrial Area Xiashiwei Road of Fuyong Street, Bao'an District, Shenzhen
Equipment Under Test (EUT):
EUT Name: QI charger 5w
Model No.: QIC32, QIC29, PW001 ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark: Heyday
FCC ID: 2AO23QIC32
Standard(s) : 47 CFR Part 15, Subpart C (only for Radiated Emissions)
Date of Receipt: 2018-11-19
Date of Test: 2018-11-20 to 2018-11-23
Date of Issue: 2018-11-26

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-11-26		Original

Authorized for issue by:				
				
		<hr/>		
		Peter Geng /Project Engineer		
				
		<hr/>		
		Eric Fu /Reviewer		



2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emissions (9kHz-1GHz)	47 CFR Part 15, Subpart C	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Remark:

Model No.: QIC32, QIC29, PW001

Only the model QIC32 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on model No. and color.

This test report (Ref. No.: SZEM181100996501) is only valid with the original test report (Ref. No.: SZEM181000928801).

Compared with the original report, the model in this report just changed the length about USB.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report Radiated Emissions (9kHz-1GHz) was fully retested on model QIC32 and shown the data in this report, other test data please refer to the original report SZEM181000928801.



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4 General Information

4.1 Details of E.U.T.

Power supply:	Input: DC 5V/2A Output: 5W
Cable:	USB charging line: 150cm, unshielded
Operation frequency:	110.42-175.00 kHz
Modulation type:	Load modulation
Antenna type:	Inductive Loop Coil Antenna
Remark:	This device has been tested the worst status of full load and the device has been tested with mobile phone at zero charge, intermediate charge, and full charge.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
AC/DC adapter	provided by client	CYSK10-050200	N/A
iPhone 8	Apple	A1863	F4GVQ656JC6D

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF conducted power	$\pm 0.75\text{dB}$
5	RF power density	$\pm 2.84\text{dB}$
6	Conducted Spurious emissions	$\pm 0.75\text{dB}$
7	RF Radiated power	$\pm 4.5\text{dB}$ (below 1GHz)
		$\pm 4.8\text{dB}$ (above 1GHz)
8	Radiated Spurious emission test	$\pm 4.5\text{dB}$ (Below 1GHz)
		$\pm 4.8\text{dB}$ (Above 1GHz)
9	Temperature test	$\pm 1^\circ\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Radiated emission(below 30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2018-07-12	2019-07-11
EMI Test Receiver (9kHz-3GHz)	Rohde & Schwarz	ESCI	SEM004-01	2018-04-02	2019-04-01
Trilog-Broadband Antenna (30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-01-26	2019-01-25
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2018-04-13	2019-04-12
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21

Radiated emission(30MHz-1GHz)					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2018-09-25	2019-09-24
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2018-04-02	2019-04-01
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2018-07-12	2019-07-11

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2018-09-27	2019-09-26
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2018-09-27	2019-09-26
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2018-09-27	2019-09-26
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07

6 Radio Spectrum Matter Test Results

6.1 Radiated Emissions (9kHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

Frequency Range: 9kHz to 1GHz

Measurement Distance: 3m and 10m

Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30
30-88	100	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3

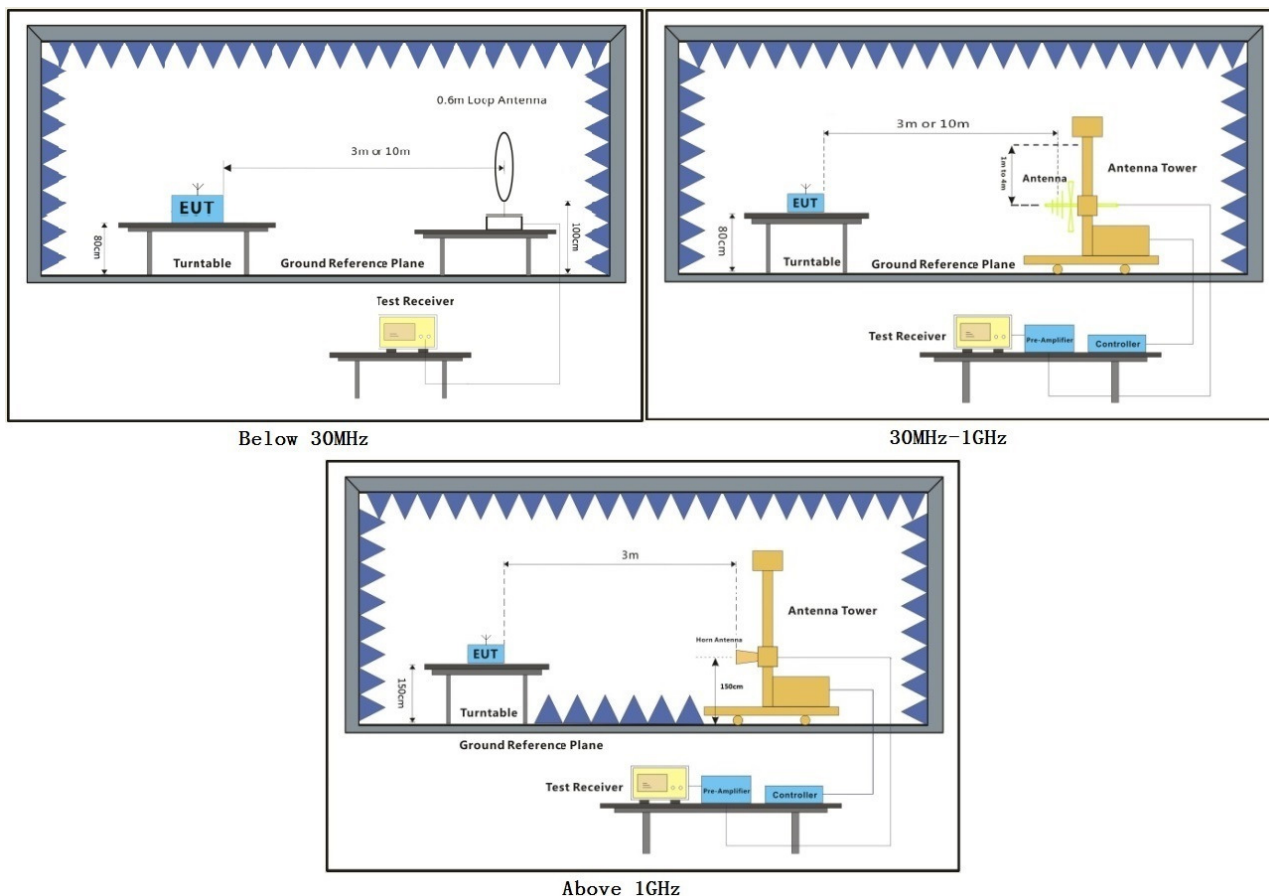
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

Test mode a: Charge mode_Keep the EUT charging(5W)

6.1.2 Test Setup Diagram



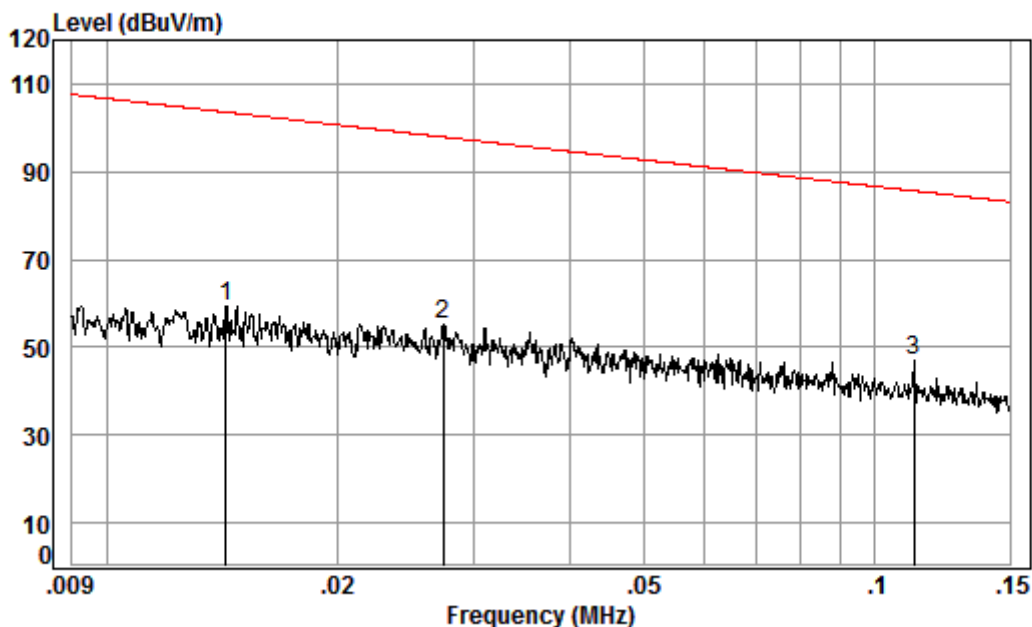
6.1.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.



9kHz-150kHz

Mode:b; Polarization:Horizontal



Condition: 10m

Job No. : 09965CR

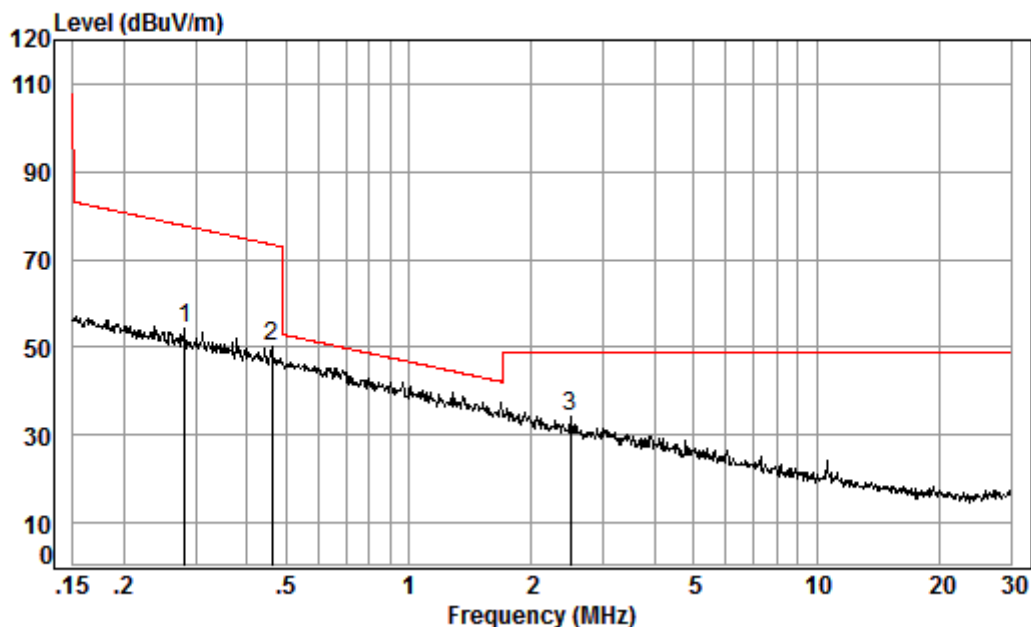
Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.01	0.25	17.09	32.55	74.67	59.46	103.59	-44.13
2	0.03	0.18	14.10	32.55	73.45	55.18	97.93	-42.75
3 pp	0.11	0.05	11.91	32.56	67.41	46.81	85.66	-38.85



150kHz-30MHz

Mode:b; Polarization:Vertical



Condition: 10m

Job No. : 09965CR

Test Mode: a

	Freq	Cable	Ant	Preamp	Read	Limit	Over
	MHz	Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m
1	0.28	0.09	11.95	32.56	74.75	54.23	77.69
2	0.46	0.11	11.73	32.56	70.72	50.00	73.42
3 pp	2.49	0.36	12.15	32.54	54.18	34.15	48.63



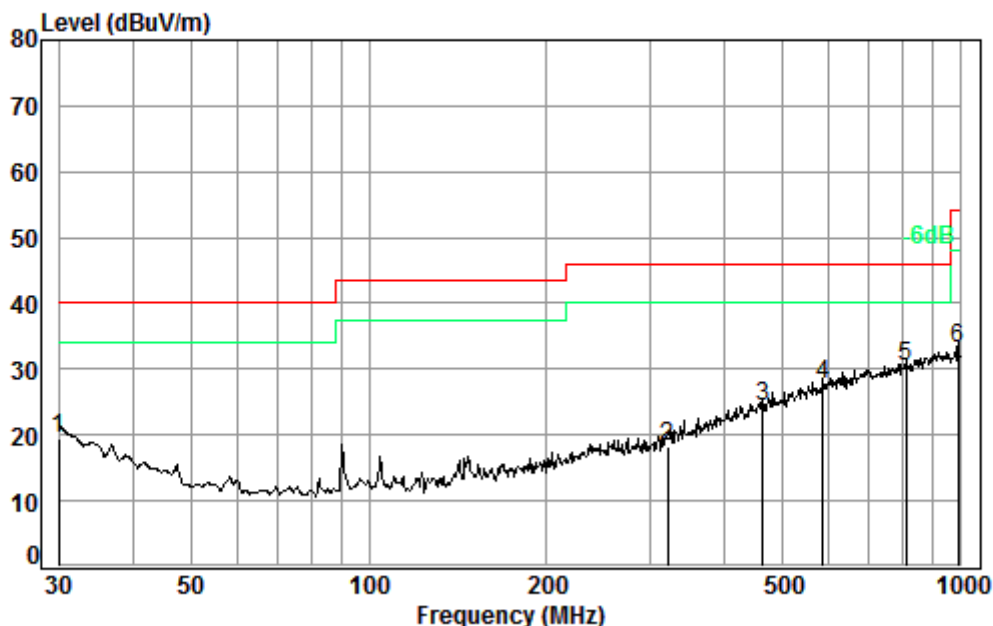
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30MHz-1GHz

Mode:a; Polarization:Horizontal;



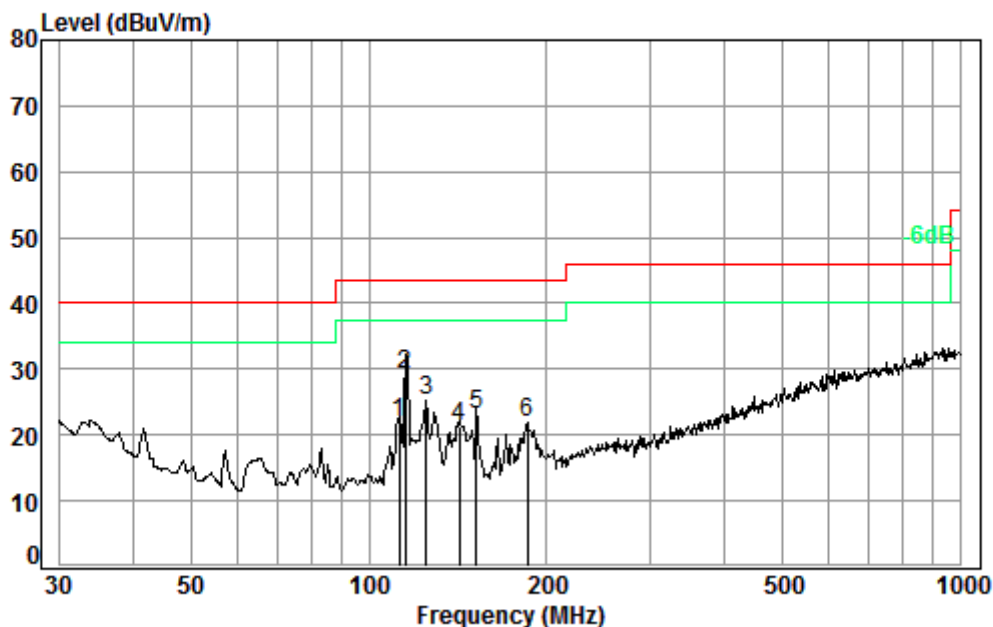
Condition: 3m HORIZONTAL

Job No. : 09655CR

Test mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.00	0.60	22.50	27.67	24.06	19.49	40.00	-20.51
2	319.94	1.97	20.23	27.58	23.60	18.22	46.00	-27.78
3	463.97	2.47	23.86	27.83	25.78	24.28	46.00	-21.72
4	584.79	2.69	26.32	27.73	26.26	27.54	46.00	-18.46
5 pp	807.43	3.24	28.60	27.39	26.08	30.53	46.00	-15.47
6	989.54	3.69	30.25	26.80	26.07	33.21	54.00	-20.79

Mode:a; Polarization:Vertical;



Condition: 3m VERTICAL

Job No. : 09655CR

Test mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	112.52	1.23	13.42	27.51	34.69	21.83	43.50	-21.67
2 pp	115.32	1.24	13.30	27.51	42.13	29.16	43.50	-14.34
3	125.01	1.26	13.26	27.52	38.30	25.30	43.50	-18.20
4	142.32	1.30	13.92	27.52	33.64	21.34	43.50	-22.16
5	152.13	1.32	14.82	27.52	34.57	23.19	43.50	-20.31
6	185.14	1.38	16.06	27.53	32.01	21.92	43.50	-21.58



7 Photographs

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please refer to external photos for details.

- End of the Report -